US Army Medical Research and Materiel

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Method of Raising Antibodies Against *E. coli* of the Family CS4-CFA/I

This invention provides a consensus peptide of 36 amino acids that can act as an immunogen to raise antibodies against proteins associated with all members of the enterotoxigenic *Eschericia coli* (ETEC) CS4-CFA/I family. The protein region represented in the subunit encompasses known linear B- and T-cell epitopes of CFA/I. The consensus peptide has a high level of homology to strains bearing eight different colonization factors. The invention could potentially be used as a vaccine or diagnostic agent to identify antigens of the CS4-CFA/I family of bacteria. The peptide can be readily conjugated to other moieties.

Five categories of diarrheal-causing *E. coli* have been identified, with ETEC being the most common. ETEC is responsible for high infant mortality in developing countries and poses a risk to travelers to endemic areas. The current vaccines are unlicensed, have not demonstrated efficacy, and present manufacturing problems. The consensus peptide was administered to rabbits and their serum was studied using Western blots and bacterial agglutination assays. High antibody titers against CS1, CS2, CS4, CS17, and CFA/I strains were d. Conjugation of the peptide to larger molecules d its ability to raise antibodies against ETEC.

Preparations of analogous peptides of the various *E.coli* strains may be used as vaccine cocktails. The denatured proteins may be used as antigens for preparation of as well.

Features and advantages:

- **Could provide effective immunization against several strains with a single antigen**
- **Method does not require use of living organisms**
- **Denatured proteins can give rise to antibodies that are reactive with proteins of other strains**
- **Could conjugate peptides and denatured proteins to**

Patent Status

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